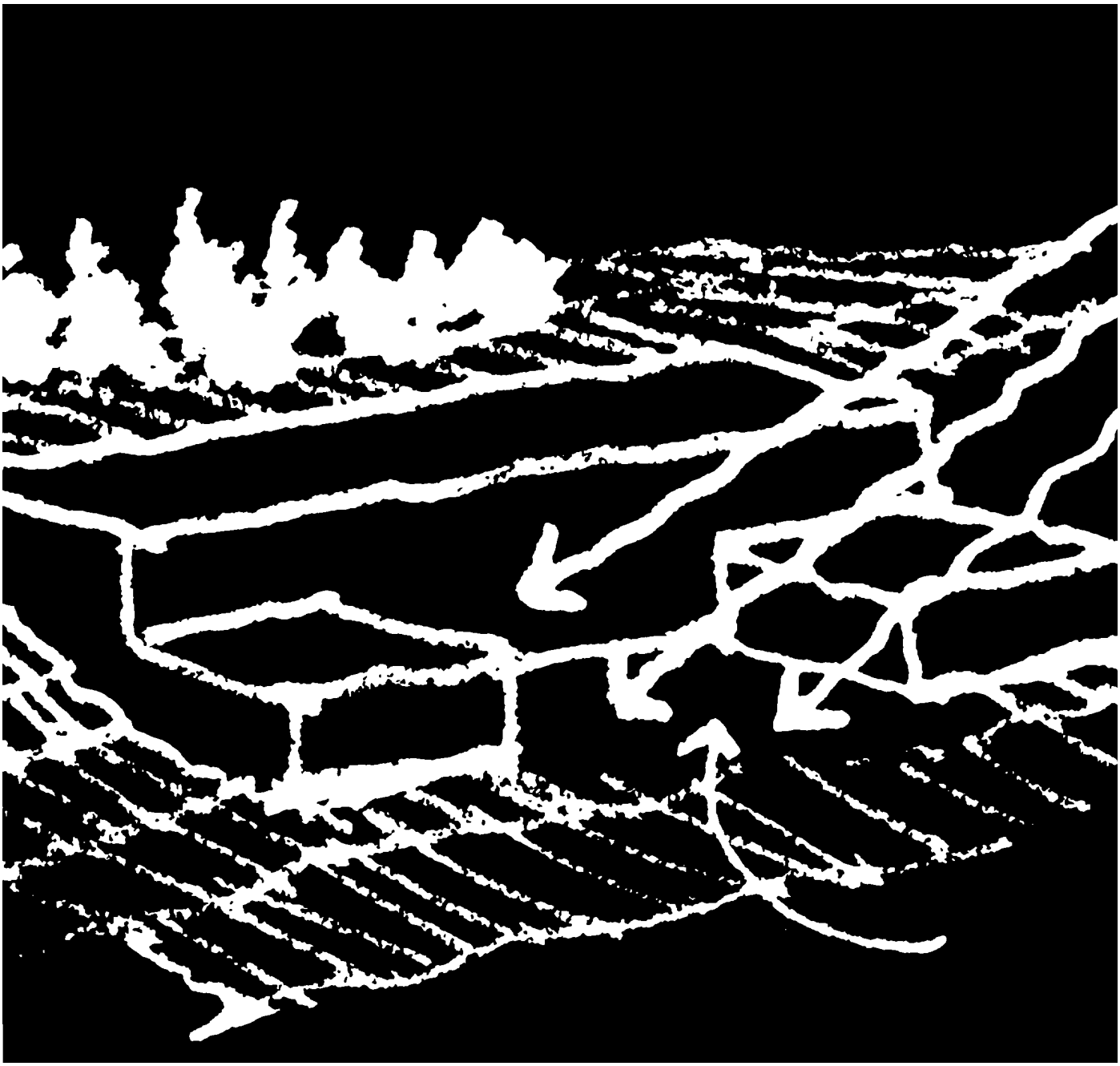
The image of an installation is largely determined by the design character and siting of its buildings. The objectives of the site planning and architectural design process must go beyond the need to satisfy the functional requirements of a facility. It should strive to achieve an ordered sense of place - a comfortable, attractive and functional setting for its intended activities.



Section I:

Observations and Objectives.

3-1.
Typical Problems.
While field conditions vary considerably according to a particular installation's mission and setting, a number of common problems have occurred in the design character and siting of buildings at various installations.

A. Development Pattern.
Buildings are typically organized within a grid network of streets and utilities that can easily result in a visually monotonous development pattern and can limit facility design and expansion opportunities.

B. Design Process.

When facilities were sited on a case-by-case basis without an overall conceptual framework or master plan, a chaotic development pattern often resulted where facilities were poorly related, both visually and functionally, to each other as well as to the circulation and open space systems of the installation *(fig. 3-1).*

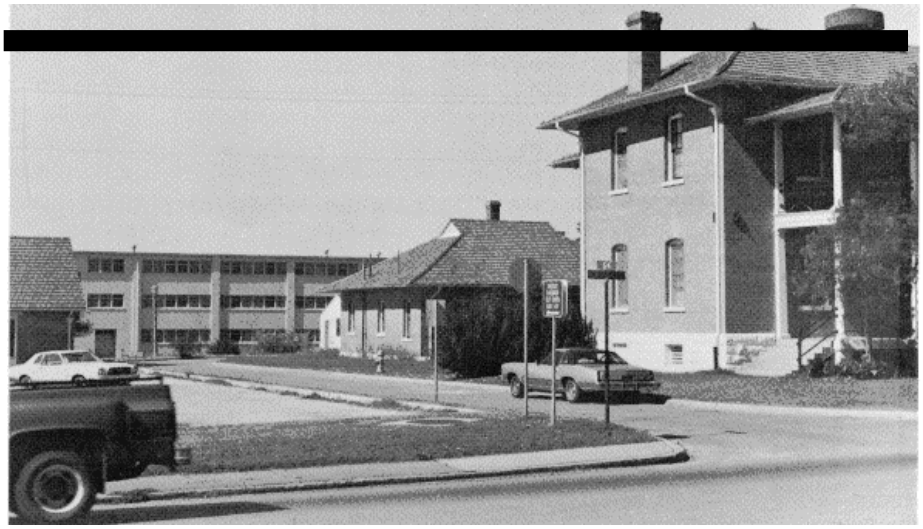


Fig. 3-1.

C. Relationship to Site Features.

Natural site features such as topography, trees and scenic views were often ignored in facility design. When properly recognized, such features can be preserved and enhanced as assets that compatibly relate facilities with their natural setting. Furthermore, environment disruption and landscape reconstruction costs can be minimized *(fig. 3-2).*

fig. 3-2.

D. Parking.
The voracious spatial demands of automobile parking and circulation commonly dominate the physical setting of facilities *(fig. 3-3).*

fig. 3-3.

E. Architectural Character.
The architectural character of new facilities is often incompatible with older development. In such cases, new buildings have either ignored the prevailing architectural character and scale of adjacent buildings or unsuccessfully attempted to relate them by some cosmetic or imitative technique. Successful examples have been accomplished by contemporary design that relates new buildings to older development by means of a compatible scale, massing, form, color and materials *(fig. 3-4).*

fig. 3-4.

F. Space between Building.
The space between buildings has often been considered "left-over" space without appropriate planting *(fig. 3-5).*

fig. 3-5.

G. Coordination with Site Development Components.
A lack of design coordination often exists between buildings and their site development components such as lighting, signing and street furniture.

H. Historic Preservation.
Many installations contain buildings of noteworthy historical architecture or areas of historical significance that provide an important sense of heritage. In some cases the integrity of the building or area has been damaged by either insensitive design modifications or introduction of incompatible elements into the area *(fig. 3-6).* Through preservation and adaptive reuse, many of these resources can provide both functional facilities and a sense of history to an installation.

I. Climate Considerations.
Many buildings have been designed and sited with little regard to climatic conditions. Instead, there has been a heavy reliance on the mechanical and electrical systems of a building to overcome climatic conditions. Proper building orientation, building design and planting design can conserve energy as well as provide pedestrian protection and comfort from inclement weather, temperature extremes and intense sun glare *(fig. 3-7).*

fig. 3-6.

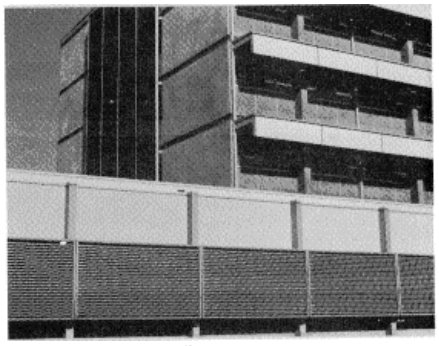


fig. 3-7.

3-2.
Objectives.

A. Adapt Building Design; to Natural Site Conditions.

1. Physiographic Features.
Respecting and using the natural environment to advantage requires careful consideration of site conditions such as topography, vegetation, tree cover, climate and views. The careful preservation, accentuation or studied alteration of natural site features enables new facilities to blend with their natural setting. Furthermore, such practices minimize plant replacement costs and negative environmental impacts of construction as well as future site maintenance problems. The destruction of the natural environment by the all too frequent development process of gross clearing, regrading to a "workable" profile, channelization of natural site drainage and then replanting should and can be avoided or minimized.

2. Climate. Proper consideration should be given to prevailing winds, solar orientation and micro-climatic conditions. Building orientation as related to solar and wind conditions, building form in terms of shape, massing, fenestration and color, and planting can all be used to modify the adverse effects of climate. This will help to conserve energy through reduced dependence on a building's mechanical and electrical systems and to provide for pedestrian comfort and convenience.

B. Relate Buildings in Groups.
The most frequently encountered site planning problems on military installations is the planning of buildings in groups. This may involve either the fitting of a new building into the context of existing buildings or the incremental, long-range development of a planned group of buildings.

In either case, successful site planning and design requires dealing with many more factors than simply dropping the building into the center of a vacant site. Essential considerations include the organization of site access; the separation of auto, pedestrian and service traffic; the functional and visual organization of the space between buildings; the establishment of compatible scale and architectural character between buildings; provisions for anticipated growth and expansion; and the relationship of buildings to natural site features.

C. Develop a Coherent Architectural Character.

Most military installations have been developed over a long period of time. Often a new building is located among older facilities in an area with a prevailing character established by a given architectural style, material or scale. The character of the area may be the result of an historic regional style such as the Spanish Mission Style at Fort Sam Houston and the San Diego Naval Training Center. In other instances, an order has been established by a consistent use of materials, such as brick, and a similarity in massing and building height. Many factors contribute to perpetuating a coherent architectural character including scale, materials, color, massing, form, proportions, spatial relationships and supporting site components. This requires the talents of skilled architects.

A consistent and coherent architectural character fosters a "sense of order" and a "sense of place" within an installation. It is an important visual attribute to be carefully guarded and perpetuated by future development.

D. Preserve Historic Building and Areas.

Recognition and preservation of an installation's historical areas and architecture are important aspects of installation design and help foster and instill a sense of heritage among military personnel and civilians alike. In addition, these facilities provide an element of visual interest and variety. Maintaining an appropriate setting for these historic facilities is essential in preserving their visual integrity. These facilities often offer opportunities not limited to historic display, such as adaptive reuse of their interior space as functional facilities.

Section II:

Design Guidelines.

3-3.

Establishing and Implementing Architectural Guidelines.

Every installation should develop its own architectural guidelines to promote a coherent architectural character that provides visual order, clarity, interest and human scale within the installation These architectural guidelines should be specific enough to assure basic harmony and coordination of architecture, yet flexible enough to promote variety and visual interest Employ the following general process to establish architectural guidelines for an installation

A. Assess the Existing Architectural Character.

Initially, the architectural character of most existing buildings within the installation should be identified and analyzed. This can be accomplished by a visual survey and background research conducted by a trained architect or team of architects, documenting their findings on a survey form, maps and photographs. The architectural style, historical or architectural importance, exterior condition and alterations of these buildings should be determined. In addition, the compatibility of each

building with its setting should be evaluated in terms of building form and height, materials, color and architectural details. Architecture of merit as well as areas of coherent architectural character and interest should serve to establish a prevailing architectural character upon which the architectural guidelines are to be based.

B. Evaluate Other Architectural Determinants. Architectural guidelines should also be based upon other factors influencing the architectural character of the installation. These factors include climate, land form, landscape character, contemporary building technologies and economics of the area.

C. Formulate Architectural Guidelines. Based upon the prevailing architectural character and other architectural determinants, architectural guidelines should be developed for the installation. These guidelines should specify the general architectural style, massing, form, materials, colors and details for new as well as renovated facilities. These architectural guidelines can be developed at three levels of detail:

1. overall guidelines governing the entire installation,

2. general guidelines for functional subareas or districts within the installation, and

3. specific design guidelines and criteria for a particular facility or building complex.

D. Implement Architectural Guidelines. The architectural guidelines should be complemented in a twofold manner. First, they should serve as design criteria for architects under contract to prepare design plans for new or renovated facilities. Second, they should serve as evaluation criteria for military personnel responsible for overseeing the design of these new or renovated facilities.

Consideration can also be given to establishing a Design Review Board composed of government personnel and/or independent design consultants who would be responsible for reviewing design proposals and suggesting modifications prior to final approval of the design plans.

3-4.
Adapt Buildings to Natural Site Conditions.
The site planning and design of buildings should relate harmoniously to the landscape character and climatic conditions.

A. Landscape Character.
Apply the following principles to minimize adverse impacts on the existing site (figs. 3-8 and 3-9).

fig. 3-8.

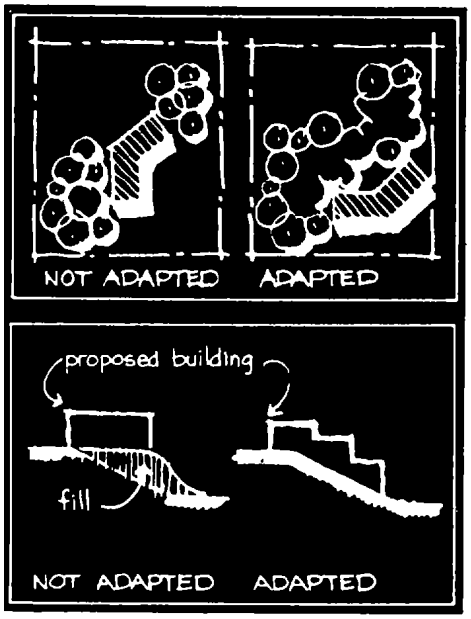


fig. 3-9.

1. Inventory existing natural terrain, vegetation and views prior to formulation of a site development concept.

2. Preserve, enhance and use advantageously such natural site features as mature trees and vegetation, terrain, and topographic features and scenic views and vistas.

3. Locate facilities that have expansive building types and parking requirements on relatively flat terrain. Generally, these are site areas with less than 6% slope gradients *(fig. 3-10).*

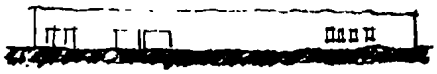


fig. 3-10.

4. Use moderately sloping (6 to 15% slope gradient) areas for residential or other less expansive building types that can adapt to the sloping terrain *(fig. 3-11).*

fig. 3-11.

5. Avoid development in steeper slope (greater than 15% slope gradient) areas where adverse environmental impacts and development costs begin to escalate dramatically.

6. Avoid development in natural drainage ways and flood plains; land uses for flood plain areas should be limited to open space preserves and outdoor recreation facilities.

7. Provide a reasonable balance of cut and fill.

8. Provide adequate continuous slopes for all parts of the site not occupied by buildings. These slopes should be graded to drain toward streets or natural drainage courses to keep to a minimum the number of required storm drains. Grassed slopes away from buildings should be a minimum of 6 inches vertical for a horizontal distance of 10 feet.

B. Climate.

Site and design buildings in response to the local climate to provide a comfortable setting for outdoor activities and to conserve energy by lessening the demands on the heating and air conditioning systems of a building. General guidelines for the siting and design

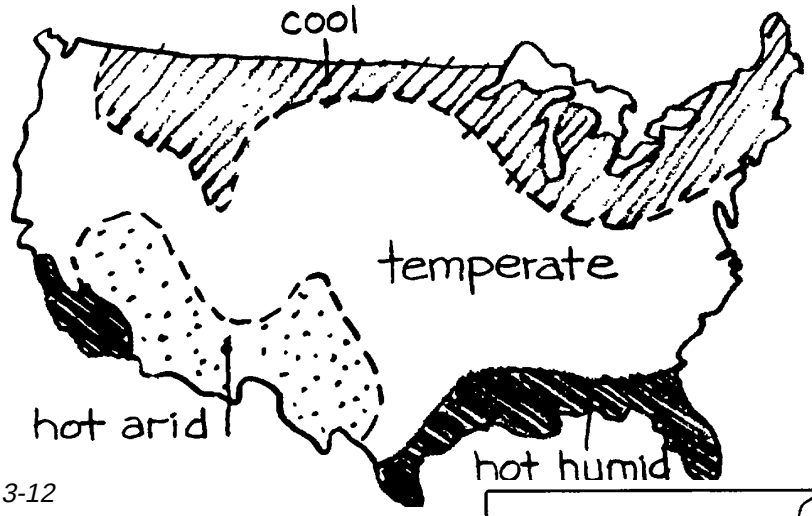


fig. 3-12

of buildings in various climatic regions are set forth below. Figure 3-12 illustrates the general extent of the four major climatic regions within the continental United States.

1. Cool Regions. Design and site buildings primarily for winter heat conservation by maximizing the warming effect of solar radiation in winter and reducing the impact of cold winter winds.

a. Utilize south and southeast facing slopes.

b. Orient active outdoor pedestrian areas of the building to the south.

c. Create protected sun pockets for outdoor pedestrian areas *(fig. 3-13).*

d. Utilize medium colored building surfaces exposed to the sun and dark colors on recessed surfaces to absorb solar radiation.

e. Use generous south facing windows to capture warming solar radiation within the building interior.

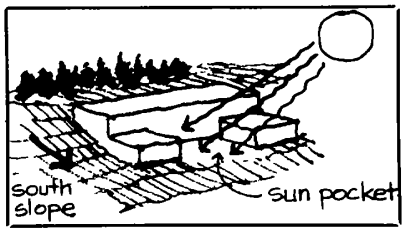


fig. 3-13.

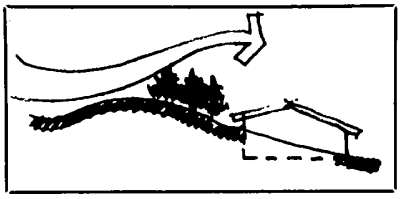


fig. 3-14.

f. Locate buildings on the leeward side of hills in the "wind shadow" *(fig. 3-14).*

g. Use the natural insulation of the earth where possible, such as building into hillsides, to reduce winter heat loss *(fig. 3-14).*

h. Use evergreens, earth berms or mounds and walls to provide winter wind screening of northern facing building walls.

i. Minimize unshielded window areas on exposed northern facing walls that face prevailing winter winds.

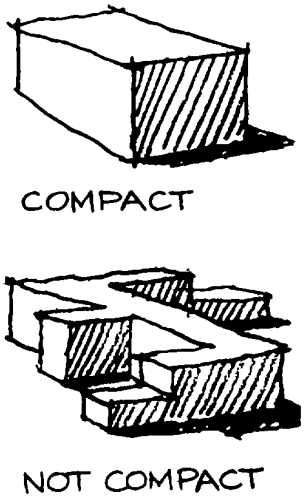


fig. 3-15.

j. Minimize the extent of a building's exterior surface area by consolidating buildings or building masses into a compact configuration (fig. 3-15).

2. Temperate Regions.

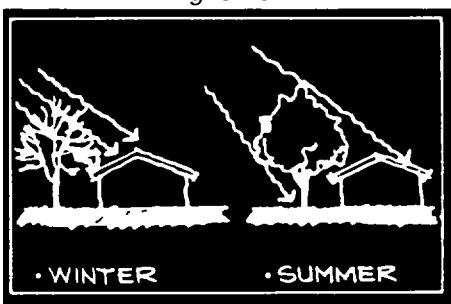
Design and site buildings to balance the effects of seasonal thermal variations, promoting both winter warming and summer cooling in terms of seasonal solar orientation and prevailing wind direction.

a. Use deciduous trees to the east and west that allow penetration of warming winter sun but shade from the hot summer sun *(fig. 3-16).*

b. Utilize roof overhangs that shield window areas on south facing walls from the higher summer sun but admit the lower winter sun *(fig. 3-17).*

c. On higher buildings, sun shades can be used to control summer sun: horizontal sunshades over south facing windows, eggcrate type sunshades over east and west facing windows, and vertical fins on north facing windows are most effective.

fig. 3-16.



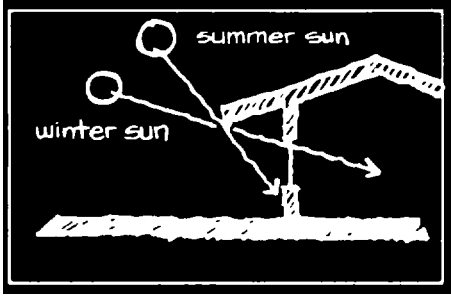
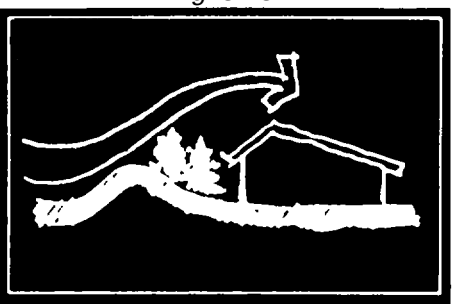


fig. 3-17.

fig. 3-18.



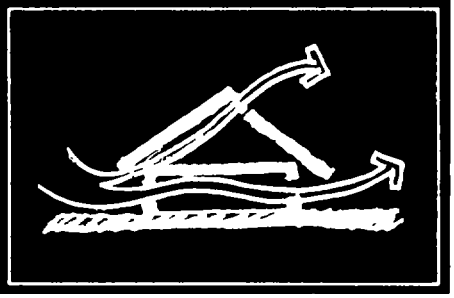


fig. 3-19.

d. Use medium color surfaces on exterior walls to balance the need for summer reflection and winter absorption of solar radiation; use light colored roofs to reflect summer sun; use dark absorbent colors only in recessed places protected from summer sun.

e. Use steeply pitched roofs on the winter windward side to deflect winter winds and reduce the exposed roof area directly facing winter winds *(fig. 3-18).*

f. Protect building walls exposed to winter winds with evergreens, earth berms or mounds, fences, walls or outbuildings such as garages or storage sheds that can serve as wind screens *(fig. 3-18).*

g. In appropriate buildings that will not be air conditioned, encourage cross ventilation and roof ventilation by prevailing summer breezes for cooling during hot summer months. This can be accomplished in terms of building orientation and window placement, roof and gable ventilation and planting based upon prevailing summer breezes *(fig. 3-19).*

3. Hot Arid Regions.

Design primarily to minimize building heat gain by solar radiation while maximizing shade and encouraging humidity in outdoor spaces around buildings.

a. Utilize densely arranged and shaded layouts of buildings, compact building shapes and shaded walkways and courtyards *(fig. 3-20).*

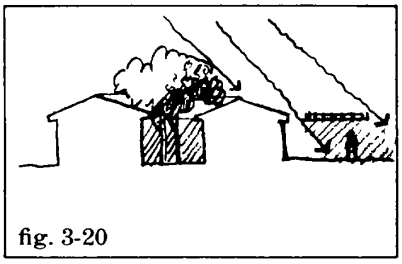


fig. 3-20.

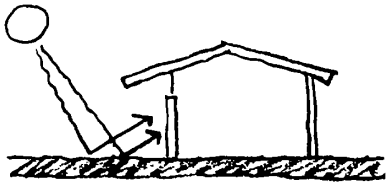


fig. 3-21.

b. Avoid paved ground surfaces which hold beat and produce sun glare *(fig. 3-21).*

c. Use light colored walls and roofs that reflect solar radiation; use dark colors under overhangs to reduce solar reflection into building interiors.

d. Shelter windows from direct solar radiation with sunshades, roof overhangs and plants; avoid east and west facing windows that are difficult to shade from low sun angles; set windows high in walls to avoid ground-reflected solar radiation.

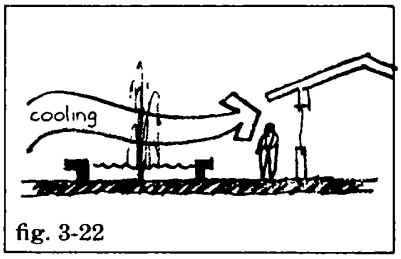


fig. 3-22.

e. Incorporate water features in site development concepts to maximize humidity and the cooling effects of evaporation from water *(fig. 3-22).*

f. Utilize dense overhead planting to provide shade, slow evaporation and hold humidity near ground level *(fig. 3-23).*

fig. 3-23.

g. Minimize paved areas and maximize planted ground covers to promote humidity and reduce solar reflection and glare.

4. Hot Humid Regions.
Design primarily to minimize building heat gain by solar radiation while promoting air movement and cross ventilation for comfort from humidity.

a. Maximize shade throughout the day, both to reduce solar radiation and sun glare.

b. Use window sunshading devices that provide protection from solar radiation but encourage air flow; minimize east and west facing walls and windows where solar control from low sun angles is difficult *(fig. 3-24).*

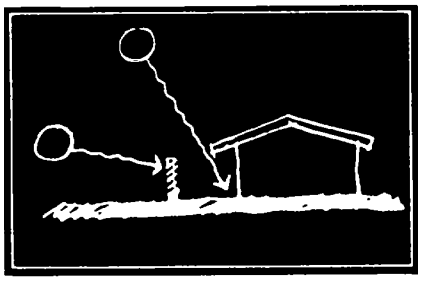


fig. 3-24.

c. Use roof overhangs for sun screening, rain and sun glare protection; utilize trellises as effective sun and glare control devices.

d. Utilize light colored roofs to reflect solar radiation.

e. Shade outside walkways with trees, building canopies or arcades.

f. Encourage closely located but physically separated building arrangements that promote air movement between buildings.

g. Orient streets and buildings to maximize cooling breezes; use vegetation to channel cooling breezes *(fig. 3-25).*

h. In non-air-conditioned buildings maximize roof ventilation and cross ventilation of living and working spaces.

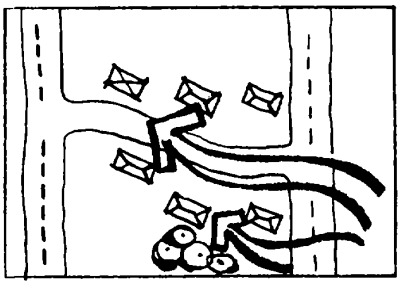


fig. 3-25.

i. Maximize openings and windows that promote cross ventilation.

j. Select building sites near the crest of hills or on the windward side or ridges to maximize wind flow.

k. Use high branching site vegetation that provides shade but allows passage of cooling breezes near ground level; avoid low vegetation that blocks air movement into and around buildings *(fig. 3-26).*

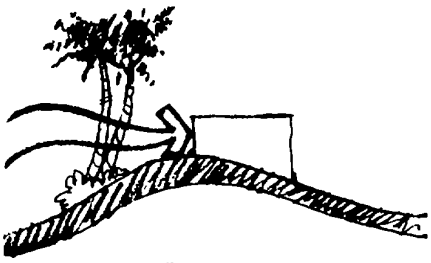


fig. 3-26.

3-5.
Relate Buildings in Groups.
Buildings that are located in groups should have strong visual and functional interrelationships. The design process of establishing compatible relationships between buildings in groups may entail either integrating a new building into an existing group of buildings or designing a totally new group of buildings that may be implemented at one time or in a phased development sequence.

A. Site Organization
The design of new buildings that are to become part of a group of buildings should be based upon an overall site development concept with adequate provisions for future flexibility and expansion.

1. Overall Site Development Concept.
Establish an overall site development concept that provides the framework within which individual buildings can be compatibly integrated and coordinated with other buildings and associated site development *(fig. 3-27).*

a. Carefully inventory existing site conditions, land suitability, buildings, parking, circulation, utilities and open space systems and climate prior to formulation of a site design concept.

b. Formulate a development program that includes: building space requirements; access requirements for pedestrians, vehicular and service traffic; parking requirements; adjacency requirements with other buildings; and utility service requirements.

c. Coordinate circulation and parking that serves the entire building group.

d. Coordinate the open space network of the building group with the overall open space system of the installation.

e. Formulate the general location, massing and orientation of new buildings in response to their program requirements and desired relationship to other buildings, site circulation systems, parking, open space, natural site features and climate.

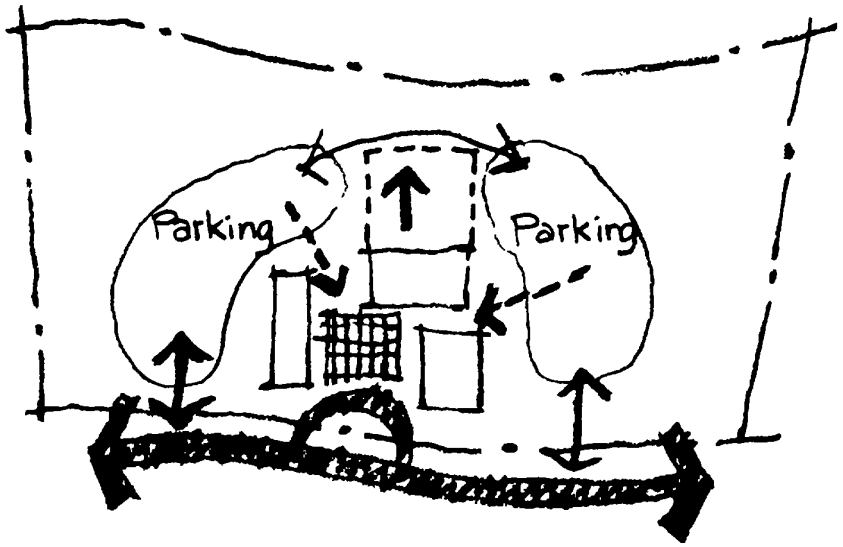


fig. 3-27.

2. Expansion Capability.
Anticipate future expansion needs of buildings in groups and incorporate them into the site development concept.

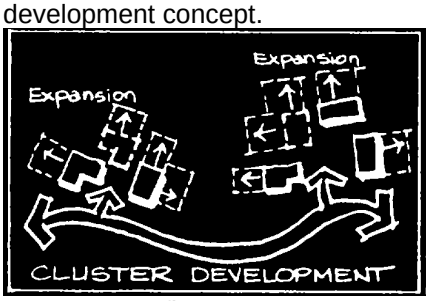


fig. 3-28.

a. Consider a cluster development pattern that can facilitate efficient use of land and preserve vacant land for future expansion of facilities *(fig. 3-28).*

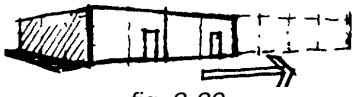


fig. 3-29.

b. Consider future horizontal expansion for buildings such as company administration facilities *(fig. 3-29).*

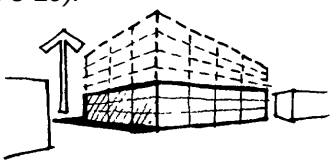


fig. 3-30.

c. Consider vertical expansion of buildings to preserve open space or adjacent buildings. Vertical expansion of buildings tends to be more costly and disruptive of existing building operations than horizontal expansion and requires the provision of adequate structural design, future parking and utilities *(fig. 3-30).*

d. Consider conversion of surface parking lots to multi-level parking structures to provide for building expansion when land is scarce and the intensity of new development can off-set the additional costs of the parking structure *(fig. 3-31).*

e. (consider vacating unnecessary streets or modifying the road network to make available space for building expansion within street right-of-ways. Careful attention must be given to any underground utilities within the vacated rights-of-way which can be costly to relocate.

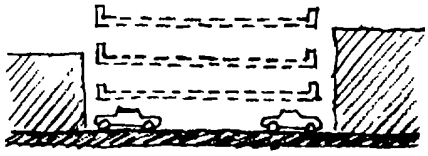


fig. 3-31.

3. Security Requirements.
By considering security requirements in the early phases of site planning, expensive and unsightly future modification can often be avoided. Use of natural barriers and the integration of security measures into facility design can minimize the necessity for obtrusive solutions, such as barbed wire fences, barricaded entrances and barred windows.

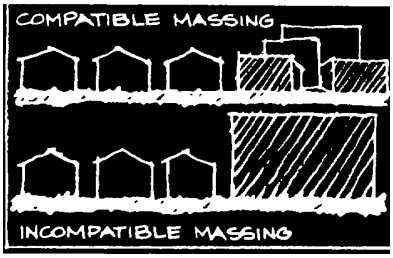


fig. 3-32.

B. Site Design.
Relate buildings compatibly in groups by means of site design that sensitively interrelates building forms and massing, open space between buildings, site circulation systems and site edges. (See *TM 5-812-1* for minimum required space between buildings.)

1. Massing. The massing of a building refers to its overall bulk, or the volume of space which the building encloses. When massing a new building, the size and proportion of its exterior envelope and elevations should be designed to relate compatibly with adjacent structures. A large facility can be made to better relate to existing smaller facilities by dividing its mass into smaller components to create a building elevation that is more compatible or complementary, in terms of its size and proportions, to the adjacent structures. This is accomplished by manipulating the configuration of the floor plan and/or building height to break down the mass of the building into smaller elements *(fig. 3-32).*

2. Form. A building's form is an articulation of its basic massing and is characterized by shape and silhouette that should be employed to compatibly relate adjacent buildings. The size and proportion of a building's elevations and its roof are the primary form-giving characteristics that are important in relating a new building to its setting. In terms of their basic form, new buildings should be contemporary architectural expressions that adhere to and are evocative of the prevailing architectural forms of adjacent buildings. Similar forms should be employed not only to relate new buildings to adjacent structures

fig. 3-33.

but also to contribute to the overall architectural coherence of the installation *(fig. 3-33).*

3. Open Space. Create outdoor open spaces between buildings that relate buildings together and convey an appropriate scale, character and quality for their intended use. (See Chapter 7: Plazas and Courtyards.)

a. Enclosure. Use buildings and planting as elements of spatial enclosure to visually define and contain outdoor space. The degree of enclosure that is conveyed is determined by the type and number of containing sides that define the space, their distance apart and their height. The nature and extent of enclosure can be used to orient or direct people, to create a distinct sense of place or to create a transitional space between the built and natural environment *(fig. 3-34).*

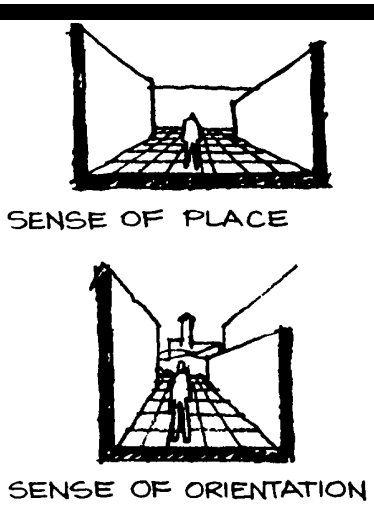


fig. 3-34.

b. Scale. Use the scale or size of an outdoor space as defined by buildings and planting to reinforce its intended use and desired character. Large outdoor spaces between buildings, especially symmetrical ones, tend to be formal and ceremonial in character, while smaller spaces convey a more personal and intimate setting *(fig. 3-35).*

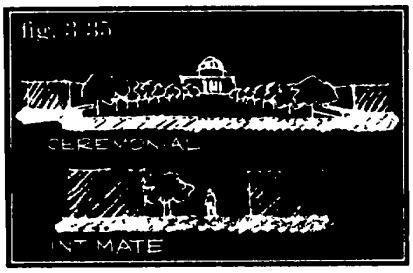


fig. 3-35.

c. Spatial Sequence. Modulate outdoor spaces between buildings, through variations in their volume and sense of enclosure, to provide a more interesting visual experience and identifiable

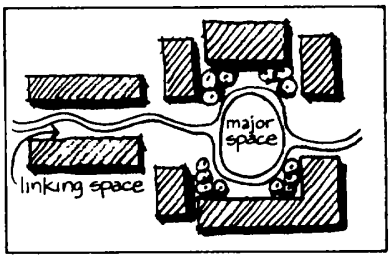


fig. 3-36.

hierarchy of spaces with within the group of buildings *(fig. 3-36).* An ordered sequence of outdoor spaces can provide a valuable sense of orientation, while discontinuous or maze-like sequences may be confusing and disorienting.

d. View Framing. The grouping of buildings can frame views, orient people to building entrances, or accentuate a key facility, landmark or dramatic vista (fig. 3-37). These views created by the arrangement of buildings and open space are important aspects of the visual quality of the environment that can be employed not only for visual interest but also to provide a sense of orientation for people using the facilities.

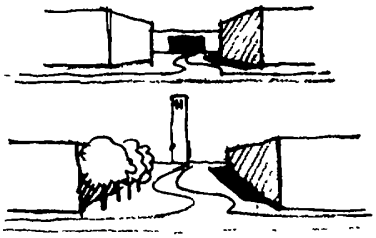


fig. 3-37.

4. Circulation and Parking.

Coordinate circulation systems and parking to relate buildings in groups.

a. Provide a balanced and coordinated circulation system to serve a group of buildings, including walkways, bikeways, automobile and service traffic. (See Chapter 4: Roads; Chapter 8: Walkways; and Chapter 9: Bikeways.)

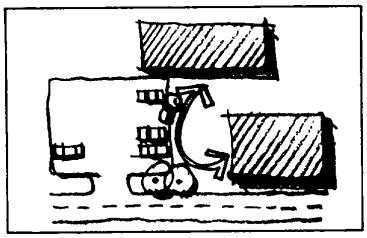


fig. 3-38.

b. Provide direct pedestrian connections between buildings, avoiding walkways that cross roads or parking lots *(fig. 3-38).*

c. Locate all building loading docks off-street and out-of-sight of main roadways and building entrances; employ appro-

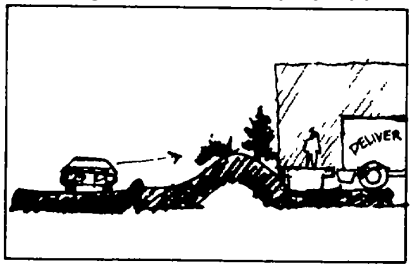


fig. 3-39.

priate fencing and/or planting to screen loading docks from adjacent buildings or areas *(fig. 3-39).*

d. Provide attractive and convenient parking by coordinating all parking that serves the group of buildings. *(See Chapter 5: Parking.)*

e. Prevent parking from dominating the visual setting of buildings in groups, especially from

fig. 3-40.

main roadways and other primary public viewing areas *(fig. 3-40).*

5. Site Edges. Provide appropriate and consistent landscape edge planting between offstreet parking facilities and main roadways, between pedestrian and vehicular-oriented areas, between different building groupings or land use areas, and along the perimeter of the installation. *(See Chapter 6: Planting.)*

a. Use plant materials as a transition or edge treatment between compatible adjacent facilities or to define and channel pedestrian traffic along a walkway.

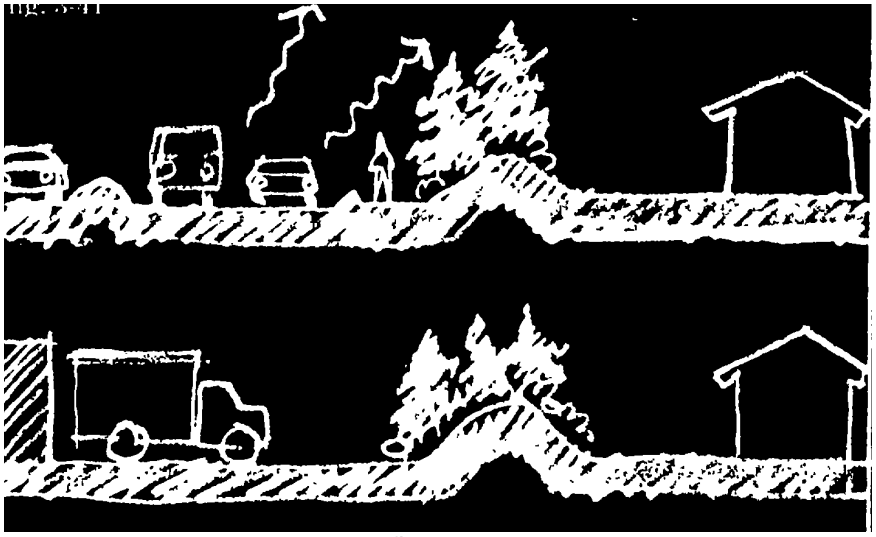


fig. 3-41.

b. Use a dense evergreen buffer area or planted earth berm for site edges where visual screening is needed, such as between visually incompatible facilities and land use areas or between parking areas and a building or street *(fig. 3-41).*

c. Use an earth berm or a solid wall combined with an open space buffer of dense planting, especially evergreens, for site edges where acoustical buffering as well as visual screening are necessary, such as between a major roadway and a residential area. *(TM 5-803-2, NAVFAC P-970 and AFM 19-10* provide a comprehensive discussion of noise reduction techniques.)

d. Use a dense evergreen edge treatment where windscreening from chilling winter winds is desired, such as along pedestrian walkways.

e. Use fencing and walls at site edges only where essential for visual screening, security or acoustical buffering and where space does not permit landscape screening *(fig. 3-42)*

fig. 3-42.

C. Architectural Fenestration. Building facades in terms of window and door openings and related details are defined as architectural fenestration. Design elements that can create a compatible fenestration treatment include scale, materials, color and rhythm.

1. Scale. Proportion and detail a building's exterior fenestration to the scale of adjacent buildings. Scale is conveyed by the fenestration of the building facade, where doorways, windows and other details enable people to gage its relative size and character in relationship to the size of the human body.

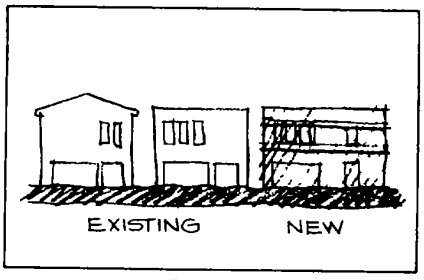


fig. 3-43.

a. When relating a new building to its setting, it is important that its design conveys a sense of scale that is compatible with adjacent buildings *(fig. 3-43).*

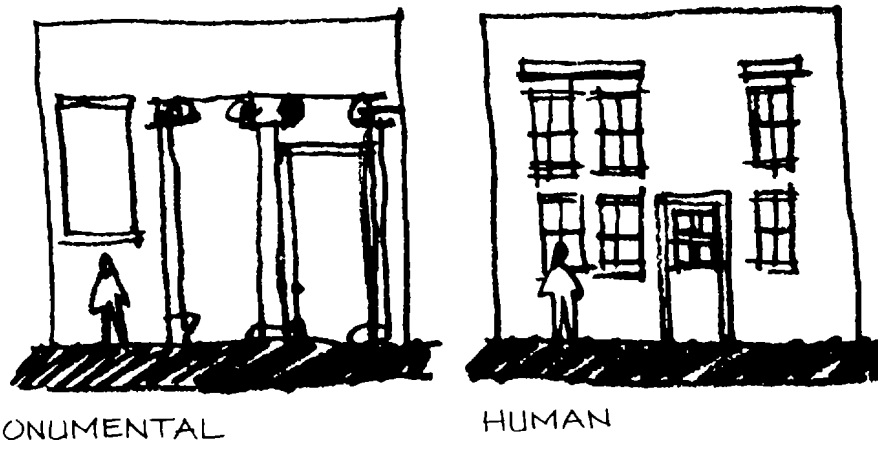


fig. 3-44.

This can be accomplished by fenestration that is similarly sized and proportioned in terms of floor heights, window openings and strength of details.

b. Larger building facades with over-sized fenestration elements tend to create a more monumental scale while smaller buildings with more finely detailed fenestrations tend to create a more human scale *(fig. 3-44).*

c. Blank wall treatments tend not to convey scale, while building elevations with detailed fenestrations created by windows and relief, accentuated by shadow lines or color, convey a strong sense of scale *(fig. 3-45).*

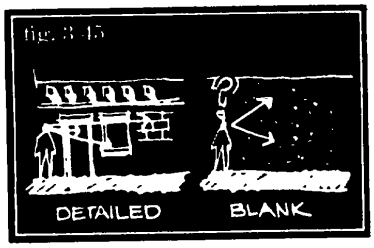


fig. 3-45.

2. Materials. Exterior building materials should provide a cohesive and consistent architectural character. If existing buildings have an architectural style worthy of merit, all future new construction should be compatible to that style.

a. Types of materials selected should vary with climatic conditions, thermal qualities, reflectivity and durability.

b. A cluttered, cosmetic application of a number of different materials on a facade should be avoided. Materials should be used consistently on all facades of a building.

c. Materials should be selected based upon their appropriateness to the building type, climatic conditions and the prevailing architectural design and landscape character of the installation. Wood, masonry and stucco tend to be the most appropriate materials for residential uses; masonry, steel, aluminum, concrete and glass tend to be the most appropriate materials for administrative or educational uses; masonry or steel frame with infill materials tend to be most appropriate for industrial uses.

d. Materials distinctive to an established architectural character worthy of merit should be adhered to consistently throughout an installation. Deviations from established materials should not be allowed without good reason.

However, economies. The use of similar materials, complementary colors and a compatibly scaled building can successfully relate new buildings to an historic style or setting.

3. Color. Relate buildings with compatible and complementary colors. Color is closely linked to the appropriate selection of exterior building materials and is a critical design element in relating adjacent buildings and creating a compatible visual environment within an installation.

a. In general, colors should be integral rather than applied to exterior building materials. Avoid surfaces that require costly periodic repainting.

b. Colors should be selected on the basis of the desired appearance and attractiveness of the building, its compatibility with adjacent building colors and the prevailing color scheme of the architectural and natural landscape character of the installation.

c. Colors should also be carefully selected for their ability to modify climatic conditions. Generally, light-colored building exteriors tend to reflect solar radiation and promote heat loss, but increase glare; dark-colored exteriors tend to absorb solar radiation, promote heat gain and reduce glare.

d. Exterior building colors should be limited in number and controlled by an established color palette for use throughout the installation. This palette should specify a limited number of coordinated and complementary colors that are subdued and harmonious.

e. Strong, loud colors should generally be avoided and used only for special identification purposes; where

they are employed they should not dominate or overpower the visual character of the setting.

f. Colors can be used to evoke an historic al or regional architectural style that should be employed only where appropriate. Examples of this are the white stucco with red tile roof of the Spanish mission style in San Diego, subdued earthtones (hues of brown, soft green and beige's) associated with the Victorian era, and pastels associated with tropical architecture (pale violets, purples, greens and pinks). *(See TM 5-807-7, Color For Buildings.*

fig. 3-46

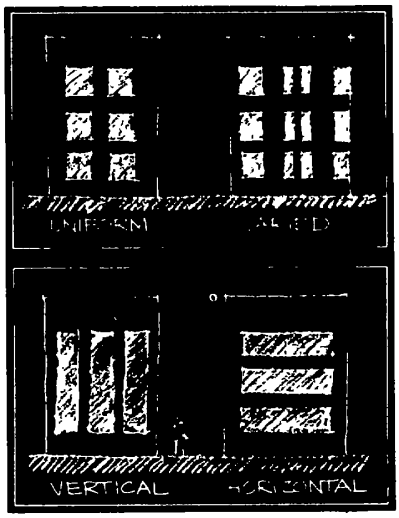


fig. 3-47.

4. Rhythm. Use the visual rhythm created by a fenestration design to compatibly relate buildings in groups.

a. Rhythm refers to the visual pattern or sequence of solids and voids that is created by structural expression, fenestration and shadow, lines along a building facade as well as the sequence of building masses and open space between buildings. The pattern of this rhythm may be either uniform or varied as well as vertical or horizontal in accent *(figs. 3-46 and 3-47).*

b. The visual rhythm established by existing buildings should be recognized and utilized as a design tool to integrate a new building with its surroundings.

3-6.

Develop a Coherent Architectural Character.
A compatible and coherent overall architectural character should be promoted within an installation. Buildings within an installation should be designed within a common architectural vernacular or design vocabulary that promotes a coherent physical appearance, character, image and identity to the installation.

A. Derivations of a Coherent Design Character.
Establish architectural guidelines that specify a general design vocabulary for all buildings within the installation. The formulation of these guidelines should be derived from the following considerations as they relate to establishing a coherent massing, form, scale and materials among buildings within the installation.

1. Landscape/Landform Character. The natural site character of the installation in terms of its terrain and vegetation may lend itself to a particular character of development and architecture.

2. Urban/Rural Context.
The general character of development within the installation, in terms of its intensity of land use, indicates a type and scale of development pattern and architecture that can range from dense and urban to sparse and rural. The guidelines should specify a desired character or transition in character among facilities within the installation.

3. Climate. The climate of an installation should heavily dictate an appropriate character of development and architecture that is conducive to user comfort and energy conservation.

4. Prevailing Regional Architectural Character.
A regional architectural character that has historically developed in response to the climate, natural setting and available building materials of the region can provide a useful model for establishing the overall architectural guidelines for the installation.

5. Prevailing Architectural Character of the Installation. The installation's prevailing architectural character may serve as the practical basis for establishing the guidelines for a coherent architectural character within the installation.

B. Design Applications.
Establish a coherent overall architectural character within the installation that can apply both to new building design and the renovation of existing buildings.

1. New Building Design.
Design new buildings to promote a coherent architectural character by means of a compatible contemporary architectural design expression.

a. Avoid trite cosmetic application of stylistic elements that allude to the architectural style of older installation buildings.

b. Encourage variety that is compatible with the overall character of the installation; avoid promoting a rigidly

homogeneous and monotonous architectural character.

c. Avoid prefabricated or modular prototype building systems whose designs are out of context with the natural setting or architectural character of the installation; utilize only those building systems that can be adapted compatibly to the site and architectural character of the installation. Where procurement schedules or economics dictate the use of these building systems, select those of compatible design, scale, color and materials. Consider the use of plant material and screening walls to lessen any negative visual impact of these building systems.

d. Installation planners should be particularly cognizant of the design and construction of community centers. There are usually two or more design and construction activities involved in the development of a community center, each with individual funding sources and methods of procurement Considering this, each installation should establish architectural, site and functional standards very early in the planning of a community center Coordination must be accomplished by an installation planner to ensure the standards are observed Differences between designers should never result in deviations from the objective of a unified design for the community center.

2. Renovation of Existing Buildings. Consider design modifications that are harmonious with the desired overall visual image and character of the installation.

3-7
Preserve Historical Buildings and Areas.
The visual integrity of historically noteworthy buildings and areas on military installations must be maintained and preserved. (TM 5-801-1 and TM 5-801-2provide specific guidance.)

A. Types of Noteworthy Facilities.
There are three categories of noteworthy buildings and areas which should be preserved.

1. Historical Architecture.
Buildings that are noteworthy from an architectural point of view and are examples of a particular style or period.

2. Historical Places. Buildings and areas that are noteworthy from an historical point of view because a significant event in national or military history occurred there.

3. Other Historical Facilities. Buildings that are less noteworthy from either an architectural or historical point of view, but are still usable and functional facilities that also provide visual interest and a sense of heritage to the installation.

B. Preservation Techniques.
Utilize appropriate preservation techniques to maintain the visual integrity of historically noteworthy buildings or areas and coordinate these with appropriate funding programs for repair, renovation or replacement.

1. Conservation is appropriate for buildings which are physically sound and have their original design integrity and value that require only maintenance, such as cleaning, repointing or repainting, to preserve their good condition.

2. Renovation is applicable to buildings that require general upgrading of either their exterior or their interior.

3. Rehabilitation is applicable to buildings which have deteriorated or are economically and functionally outmoded, and require modernization of electrical, mechanical and structural elements to extend their useful life.

4. Restoration is applicable to structures of noteworthy historic, architectural or aesthetic importance whose integrity has been lost or covered up and must be restored to achieve their original appearance; this may require either full or partial restoration of either their interior or exterior.

5. Adaptive reuse is a form of rehabilitation whereby structures are converted from their original use to an entirely new use which is productive or practical.

6. Reconstruction or replication refers to structures that are recreated from original designs to portray some historical setting or to serve as an historical museum or display.

C. Preservation Guidelines.
Use the following procedures and treatments to preserve the visual integrity of historically noteworthy buildings or areas.

1. Inventory and document significant or noteworthy historical architecture and settings within the installation. (Required by *Executive Order 11593*, May 1973.)

2. Preserve and appropriately use historic buildings or settings within the installation.

3. Avoid alterations that detract from the design integrity of historic buildings and their setting, such as inappropriate building modifications and intrusion of incompatible uses, buildings or structures into their setting.

4. When altering an historic structure, try to retain, uncover and/or restore as much of the original materials, details and design character of the building as is feasible; when introducing new parts or mixing old with new elements on the building exterior, it is essential to preserve the original design character. This should be accom-plished by obtaining competent professional design assistance.

5. Avoid imitative designs when introducing new buildings within the setting of historic buildings; encourage contemporary designs that are compatible with the old in their scale, form and use of materials.

6. Encourage adaptive reuse of historic buildings as an economical means of providing functional space while providing a sense of heritage to the setting of the installation.